

CLAIMS

I claim:

- 1           1.     A system providing a multi-channel wireless  
2     communications testing environment, said system comprising:  
3           a transmitter;  
4           a receiver; and  
5           a protocol engine interfaced to the transmitter and receiver to send  
6     and receive information to and from a two-way communication device,  
7     respectively, to test the two-way communication device for compliance  
8     with a plurality of communication protocols.
- 1           2.     The system defined in Claim 1 wherein the protocol engine  
2     transmits and receives information over multiple channels  
3     simultaneously.
- 1           3.     The system defined in Claim 1 wherein the communication  
2     device comprises a paging device.
- 1           4.     The system defined in Claim 1 wherein the protocol engine  
2     is operable to send and receive information to perform engineering  
3     testing, manufacturing testing and application testing.

1           5.     The system defined in Claim 1 wherein the plurality of  
2 protocols comprises at least a one-way communication protocol and at  
3 least a two-way communication protocol.

1           6.     The system defined in Claim 1 wherein the protocol engine  
2 uses scripted tests when testing the communications device.

1           7.     The system defined in Claim 6 further comprising an  
2 automated test script storage area to store and permit access to the scripted  
3 set of tests.

1           8.     The system defined in Claim 1 further comprising a device  
2 driver to transfer information between the protocol engine and both the  
3 receiver and the transmitter.

1           9.     The system defined in Claim 1 wherein the protocol engine  
2 comprises a series of instructions executed on at least one processor.

1           10.    A system providing a multi-channel wireless  
2 communications testing environment, said system comprising:  
3 transmitter and receiver hardware to transmit and receive  
4 information to and from communications devices using a plurality of  
5 channels; and

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6 a protocol engine interfaced to the transmitter and receiver  
7 hardware via a device driver to send and receive information to and  
8 from the communication devices, respectively, to test the  
9 communication devices for compliance with a plurality of  
10 communication protocols over the plurality of channels simultaneously.

1 11. The system defined in Claim 10 further comprising a user  
2 interface to enter information to control the protocol engine.

1 12. The system defined in Claim 11 wherein the user interface  
2 permits a user to select one of the plurality of communication protocols  
3 for testing.

1 13. The system defined in Claim 10 further comprising an  
2 automated test storage area storing at least one scripted test.

1 14. The system defined in Claim 13 wherein said at least one  
2 scripted test comprises an ASCII coded text file.

1 15. The system defined in Claim 13 wherein said at least one  
2 scripted test comprises information for configuring the system and  
3 sending messages through the system.

1           16.    The system defined in Claim 10 wherein the protocol engine  
2   comprises a retry message layer to facilitate resending of a previously sent  
3   message when an acknowledgment confirming successful transfer of the  
4   previously sent message has not been received.

1           17.    The system defined in Claim 10 wherein the protocol engine  
2   performs scheduling and transmitting for each of the plurality of  
3   protocols.

1           18.    The system defined in Claim 10 wherein the protocol engine  
2   uses an object-oriented structure.

1           19.    The system defined in Claim 10 wherein the protocol engine  
2   accesses a database to obtain device specific information to facilitate  
3   testing of a communication device.

1           20.    The system defined in Claim 19 wherein the device specific  
2   information comprises information to facilitate retrying to send a  
3   message to the communication device during a test.

1           21.    The system defined in Claim 19 wherein the device specific  
2   information comprises information to facilitate scheduling  
3   transmissions to and from the communication device during a test.

1           22.    A system comprising:  
2           at least one processor;  
3           a protocol card coupled to said at least one processor;  
4           a multiple channel digital-to-analog converter;  
5           a plurality of signal generators coupled to the protocol card and the  
6 multiple channel digital-to-analog converter to transmit analog  
7 information received from the multiple channel digital-to-analog  
8 converter in response to control from the protocol card;  
9           a plurality of radio frequency receivers; and  
10          a multiple channel analog-to-digital converter, coupled to the  
11 plurality of radio frequency receivers and said at least one processor, to  
12 convert analog information received by the plurality of radio frequency  
13 receivers to digital information for processing by said at least one  
14 processor.

1           23.    A method for testing a communications device, said  
2 method comprising the steps of:  
3           specifying a plurality of testing scenarios, including for each  
4 scenario  
5           selecting a protocol, address type and an address via a user  
6 interface,  
7           selecting a message type via the user interface,  
8           specifying a message via the user interface, and

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9           selecting scheduling of the message to be sent, including
10 specifying a message channel on which to sent the message;
11 performing the testing scenarios.

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